



Contribution ID: 170

Type: not specified

## Modal and response spectrum analyses of ITER divertor module

*Monday, 17 September 2018 11:00 (2 hours)*

While most of previous numerical analyses have been carried out under thermal and electromagnetic loads due to their significance, severe dynamic loads may also threaten its structural integrity. The present study is to investigate the resistance of the complex ITER divertor module against typical seismic loads. Two kinds of huge finite element models, which consist of the cassette body, inner and outer vertical targets, dome, and stabilizers, were developed; one is a simplified model without coolant tubes and the other is a detailed model with three-layered coolant tubes. At first, modal analyses to predict dynamic characteristics such as frequencies and mode shapes were conducted by employing either the block-Lanczos algorithm or the symmetric coupling algorithm, considering water in the coolant tubes. Subsequently, response spectrum analyses were performed with the complete quadratic combination technique by taking into account different seismic magnitudes based on ASME (American Society of Mechanical Engineers) B&PV Sec. III Appendix N. As results, calculated stress intensities at critical locations were compared with corresponding design stress intensities, according to ASME code rules, of which details dependent on sensitivity parameters were discussed.

**Co-authors:** Dr JE, Sang Yun (Nuclear engineering, Kyung Hee university); Dr LEE, Yong Min (Nuclear engineering, Kyung Hee university); Dr CHANG, Yoon-Suk (Nuclear engineering, Kyung Hee university)

**Presenter:** Dr JE, Sang Yun (Nuclear engineering, Kyung Hee university)

**Session Classification:** P1

**Track Classification:** Plasma Facing Components